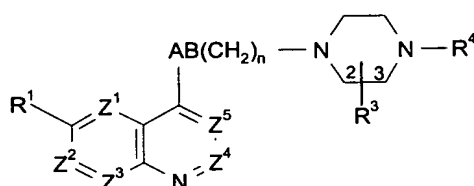


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (Currently Amended). A compound of formula (I) or a pharmaceutically acceptable salt and/or N-oxide thereof:



(I)

wherein:

one of Z¹, Z², Z³, Z⁴ and Z⁵ is N, one is CR^{1a} and the remainder are CH, or one of Z¹, Z², Z³, Z⁴ and Z⁵ is CR^{1a} and the remainder are CH;

R¹ is selected from hydroxy; (C₁₋₆) alkoxy optionally substituted by (C₁₋₆)alkoxy, amino, piperidyl, guanidino or amidino optionally N-substituted by one or two (C₁₋₆)alkyl, acyl or (C₁₋₆)alkylsulphonyl groups, NH₂CO, hydroxy, thiol, (C₁₋₆)alkylthio, heterocyclylthio, heterocyclyloxy, arylthio, aryloxy, acylthio, acyloxy or (C₁₋₆)alkylsulphonyloxy; (C₁₋₆)alkoxy-substituted (C₁₋₆)alkyl; halogen; (C₁₋₆)alkyl; (C₁₋₆)alkylthio; nitro; azido; acyl; acyloxy; acylthio; (C₁₋₆)alkylsulphonyl; (C₁₋₆)alkylsulphoxide; arylsulphonyl; arylsulphoxide or an amino, piperidyl, guanidino or amidino group optionally N-substituted by one or two (C₁₋₆)alkyl, acyl or (C₁₋₆)alkylsulphonyl groups, or when one of Z¹, Z², Z³, Z⁴ and Z⁵ is N, R¹ may instead be hydrogen;

R^{1a} is selected from H and the groups listed above for R¹;

R³ is hydrogen; or

R³ is in the 2- or 3-position and is:

carboxy; (C₁₋₆)alkoxycarbonyl; aminocarbonyl wherein the amino group is optionally substituted by hydroxy, (C₁₋₆)alkyl, hydroxy(C₁₋₆)alkyl, aminocarbonyl(C₁₋₆)alkyl, (C₂₋₆)alkenyl, (C₁₋₆)alkylsulphonyl, trifluoromethylsulphonyl, (C₂₋₆)alkenylsulphonyl, (C₁₋₆)alkoxycarbonyl, (C₁₋₆)alkylcarbonyl, (C₂₋₆)alkenyloxycarbonyl or (C₂₋₆)alkenylcarbonyl and optionally further substituted by (C₁₋₆)alkyl, hydroxy(C₁₋₆)alkyl, aminocarbonyl(C₁₋₆)alkyl or (C₂₋₆)alkenyl; cyano; tetrazolyl; 2-oxo-oxazolidinyl optionally substituted by R¹⁰; 3-hydroxy-3-cyclobutene-1,2-dione-4-yl; 2,4-thiazolidinedione-5-yl; tetrazol-5-ylaminocarbonyl; 1,2,4-triazol-5-yl optionally substituted by R¹⁰; or 5-oxo-1,2,4-oxadiazol-3-yl; or

R³ is in the 2- or 3-position and is (C₁₋₄)alkyl or ethenyl optionally substituted with any of the groups listed above for R³ and/or 0 to 3 groups R¹² independently selected from:

thiol; halogen; (C₁₋₆)alkylthio; trifluoromethyl; azido; (C₁₋₆)alkoxycarbonyl; (C₁₋₆)alkylcarbonyl; (C₂₋₆)alkenyloxycarbonyl; (C₂₋₆)alkenylcarbonyl; hydroxy optionally substituted by (C₁₋₆)alkyl, (C₂₋₆)alkenyl, (C₁₋₆)alkoxycarbonyl, (C₁₋₆)alkylcarbonyl, (C₂₋₆)alkenyloxycarbonyl, (C₂₋₆)alkenylcarbonyl or aminocarbonyl wherein the amino group is optionally substituted by (C₁₋₆)alkyl, (C₂₋₆)alkenyl, (C₁₋₆)alkylcarbonyl or (C₂₋₆)alkenylcarbonyl; amino optionally mono- or disubstituted by (C₁₋₆)alkoxycarbonyl, (C₁₋₆)alkylcarbonyl, (C₂₋₆)alkenyloxycarbonyl, (C₂₋₆)alkenylcarbonyl, (C₁₋₆)alkyl, (C₂₋₆)alkenyl, (C₁₋₆)alkylsulphonyl, (C₂₋₆)alkenylsulphonyl or aminocarbonyl wherein the amino group is optionally substituted by (C₁₋₆)alkyl or (C₂₋₆)alkenyl; aminocarbonyl wherein the amino group is optionally substituted by (C₁₋₆)alkyl, hydroxy(C₁₋₆)alkyl, aminocarbonyl(C₁₋₆)alkyl, (C₂₋₆)alkenyl, (C₁₋₆)alkoxycarbonyl, (C₁₋₆)alkylcarbonyl, (C₂₋₆)alkenyloxycarbonyl or (C₂₋₆)alkenylcarbonyl and optionally further substituted by (C₁₋₆)alkyl, hydroxy(C₁₋₆)alkyl, aminocarbonyl(C₁₋₆)alkyl or (C₂₋₆)alkenyl; oxo; (C₁₋₆)alkylsulphonyl; (C₂₋₆)alkenylsulphonyl; or (C₁₋₆)aminosulphonyl wherein the amino group is optionally substituted by (C₁₋₆)alkyl or (C₂₋₆)alkenyl; provided that when R³ is disubstituted with hydroxy or amino and carboxy containing substituents these may optionally together form a cyclic ester or amide linkage, respectively;

wherein R^{10} is selected from (C_{1-4}) alkyl; (C_{2-4}) alkenyl; aryl; a group R^{12} as defined above; carboxy; aminocarbonyl wherein the amino group is optionally substituted by hydroxy, (C_{1-6}) alkyl, (C_{2-6}) alkenyl, (C_{1-6}) alkylsulphonyl, trifluoromethylsulphonyl, (C_{2-6}) alkenylsulphonyl, (C_{1-6}) alkoxycarbonyl, (C_{1-6}) alkylcarbonyl, (C_{2-6}) alkenyloxycarbonyl or (C_{2-6}) alkenylcarbonyl and optionally further substituted by (C_{1-6}) alkyl or (C_{2-6}) alkenyl; cyano; or tetrazolyl;

R^4 is a group $-CH_2-R^5$ in which R^5 is selected from:

(C_{3-12}) alkyl; hydroxy (C_{3-12}) alkyl; (C_{1-12}) alkoxy (C_{3-12}) alkyl; (C_{1-12}) alkanoyloxy (C_{3-12}) alkyl; (C_{3-6}) cycloalkyl (C_{3-12}) alkyl; hydroxy-, (C_{1-12}) alkoxy- or (C_{1-12}) alkanoyloxy- (C_{3-6}) cycloalkyl (C_{3-12}) alkyl; cyano (C_{3-12}) alkyl; (C_{2-12}) alkenyl; (C_{2-12}) alkynyl; tetrahydrofuryl; mono- or di- (C_{1-12}) alkylamino (C_{3-12}) alkyl; acylamino (C_{3-12}) alkyl; (C_{1-12}) alkyl- or acyl-aminocarbonyl (C_{3-12}) alkyl; mono- or di- (C_{1-12}) alkylamino(hydroxy) (C_{3-12}) alkyl; optionally substituted phenyl (C_{1-2}) alkyl, phenoxy (C_{1-2}) alkyl or phenyl(hydroxy) (C_{1-2}) alkyl; optionally substituted diphenyl (C_{1-2}) alkyl; optionally substituted phenyl (C_{2-3}) alkenyl; optionally substituted benzoyl or benzoyl (C_{1-3}) alkyl; optionally substituted heteroaryl or heteroaryl (C_{1-2}) alkyl; and optionally substituted heteroaryl or heteroarylmethyl;

n is 0, 1 or 2;

AB is $NR^{11}CO$, $CO-CR^8R^9$ or $CR^6R^7-CR^8R^9$ or when n is 1 or 2, AB may instead be $O-CR^8R^9$ or $NR^{11}-CR^8R^9$, or when n is 2 AB may instead be $CR^6R^7-NR^{11}$ or CR^6R^7-O , provided that when n is 0, B is not $CH(OH)$,

and wherein:

each of R^6 and R^7 , R^8 and R^9 is independently selected from: H; thiol; (C_{1-6}) alkylthio; halo; trifluoromethyl; azido; (C_{1-6}) alkyl; (C_{2-6}) alkenyl; (C_{1-6}) alkoxycarbonyl; (C_{1-6}) alkylcarbonyl; (C_{2-6}) alkenyloxycarbonyl; (C_{2-6}) alkenylcarbonyl; hydroxy, amino or aminocarbonyl optionally substituted as for corresponding substituents in R^3 ; (C_{1-6}) alkylsulphonyl; (C_{2-6}) alkenylsulphonyl; or (C_{1-6}) aminosulphonyl wherein the amino group is optionally substituted by (C_{1-6}) alkyl or (C_{1-6}) alkenyl; or R^6 and R^8 together represent a bond and R^7 and R^9 are as above defined; and each R^{11} is independently H, trifluoromethyl, (C_{1-6}) alkyl, (C_{2-6}) alkenyl, (C_{1-6}) alkoxycarbonyl, (C_{1-6}) alkylcarbonyl, aminocarbonyl wherein the amino group is optionally substituted by (C_{1-6}) alkoxycarbonyl, (C_{1-6}) alkylcarbonyl, (C_{2-6})

(C_{1-6}) alkenyloxycarbonyl, (C_{2-6}) alkenylcarbonyl, (C_{1-6}) alkyl or (C_{2-6}) alkenyl and optionally further substituted by (C_{1-6}) alkyl or (C_{2-6}) alkenyl;

or wherein one of R^3 and R^6 , R^7 , R^8 or R^9 contains a carboxy group and the other contains a hydroxy or amino group they may together form a cyclic ester or amide linkage

wherein:

'heterocyclic' is an aromatic and non-aromatic, single ~~or~~ **and** fused, ring containing up to four hetero-atoms in each ring selected from oxygen, nitrogen and sulphur, and having from 4 to 7 ring atoms, which rings may be unsubstituted or substituted by up to three groups selected from amino, halogen, (C_{1-6}) alkyl, (C_{1-6}) alkoxy, halo (C_{1-6}) alkyl, hydroxy, carboxy, carboxy salts, (C_{1-6}) alkoxycarbonyl, (C_{1-6}) alkoxycarbonyl (C_{1-6}) alkyl, aryl, and oxo groups, and wherein any amino group forming part of a single or fused non-aromatic heterocyclic ring as defined above is optionally substituted by (C_{1-6}) alkyl optionally substituted by hydroxy, (C_{1-6}) alkoxy, thiol, (C_{1-6}) alkylthio, halo or trifluoromethyl, acyl or (C_{1-6}) alkylsulphonyl groups;

'aryl' is phenyl or naphthyl, optionally substituted with up to five groups selected from halogen, mercapto, (C_{1-6}) alkyl, phenyl, (C_{1-6}) alkoxy, hydroxy (C_{1-6}) alkyl, mercapto (C_{1-6}) alkyl, halo (C_{1-6}) alkyl, hydroxy, amino, nitro, cyano, carboxy, (C_{1-6}) alkylcarbonyloxy, (C_{1-6}) alkoxycarbonyl, formyl and (C_{1-6}) alkylcarbonyl groups;

'acyl' is (C_{1-6}) alkoxycarbonyl, formyl or (C_{1-6}) alkylcarbonyl.

2 (Original). A compound according to claim 1 wherein one of Z^1 , Z^2 , Z^3 , Z^4 and Z^5 is N and one of Z^3 and Z^5 if not N is CR^{1a} and the remainder are CH, or one of Z^1 , Z^2 , Z^3 , Z^4 and Z^5 is CR^{1a} and the remainder are CH.

3 (Previously Presented). A compound according to claim 2 wherein Z^5 is CH or N, Z^3 is CH or CF and Z^1 , Z^2 and Z^4 are each CH, or Z^1 is N, Z^3 is CH or CF and Z^2 , Z^4 and Z^5 are each CH.

4. (Previously Presented). A compound according to claim 1 wherein R^1 is methoxy, amino (C_{3-5}) alkyloxy, guanidino (C_{3-5}) alkyloxy, piperidyl (C_{3-5}) alkyloxy, nitro or fluoro.

5 (Previously Presented). A compound according to claim 1 wherein R³ is hydrogen, (C₁₋₄) alkyl, ethenyl or optionally substituted 1-hydroxy-(C₁₋₄) alkyl; or R³ contains carboxy, optionally substituted aminocarbonyl, cyano or 2-oxo-oxazolidinyl optionally substituted by R¹⁰; and wherein R³ is in the 3-position.

6 (Previously Presented). A compound according to claim 1 wherein n is 0 and either A is CHOH and B is CH₂ or A is NH and B is CO.

7 (Previously Presented). A compound according to claim 1 wherein R⁴ is (C₅₋₁₀)alkyl, unsubstituted phenyl(C₂₋₃)alkyl or unsubstituted phenyl(C₃₋₄)alkenyl.

8 (Previously Presented). A compound according to claim 1 selected from:

[2S]-1-Heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxymethylpiperazine; [2R]-1-Heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxymethylpiperazine;

[2S]-1-Heptyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxymethylpiperazine dioxalate;

[2S]-1-Heptyl-4-[2-(S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxymethylpiperazine dioxalate;

[2R]-1-Heptyl-4-[2-(S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxymethylpiperazine dioxalate;

[2R]-1-Heptyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxymethylpiperazine dioxalate;

[2R,S]-1-Heptyl-2-hydroxyethyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;

[2R,S]-2-Carboxymethyl-1-heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine trihydrochloride;

[2S]-2-Carboxymethyl-1-heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine trihydrochloride;

[2R]-2-Carboxymethyl-1-heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine trihydrochloride;

[3R]-3-Carboxymethyl-1-heptyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine tris(trifluoroacetate);

[3S]-1-Heptyl-3-[2-hydroxyethyl]-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine dioxalate;

[2S]-1-Heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]-2-hydroxyaminocarbonylmethylpiperazine;
[2R]-1-Heptyl-2-cyanomethyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine dioxalate;
[2R]-1-Heptyl-2-[2-aminoethyl]-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine dioxalate;
1-Heptyl-4-[3-(6-methoxyquinolin-4-yl)propyl]piperazine;
1-Heptyl-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;
1-Heptyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine oxalate;
1-Heptyl-4-[2-(S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine oxalate;
1-Octyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine oxalate;
1-Hexyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine oxalate; 1-(5-Methyl-1-hexyl)-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine oxalate;
1-Heptyl-4-[N-(6-methoxyquinolin-4-yl)formamido]piperazine;
[9aS, 3S]-3-(6-methoxyquinolin-4-yl)-8-heptylhexahydropyrazino [2,1-c][1,4]oxazin-3(4H)-one;
[9aS,3R]-3-(6-methoxyquinolin-4-yl)-8-heptylhexahydropyrazino[2,1-c][1,4]oxazin-3(4H)-one;
[9aR,3R]-(6-methoxy quinolin-4-yl)-8-heptylhexahydropyrazino[2,1-c][1,4]oxazine-3(4H)-one;
[9aR,3S]-3-(6-methoxy quinolin-4-yl)-8-heptylhexahydropyrazino[2,1-c][1,4]oxazine-3(4H)-one;
[3R]-1-Heptyl-3-[2-hydroxyethyl]-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine oxalate;
[3R]-1-Heptyl-3-hydroxymethyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;
[3S]-1-Heptyl-3-hydroxymethyl-4-[2-(S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;
[3S]-1-Heptyl-3-hydroxymethyl-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;
[3R]-1-Heptyl-3-hydroxymethyl-4-[2-(S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;

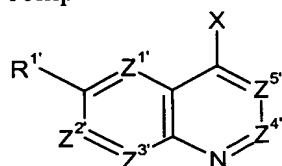
1-(3-phenoxypropyl)-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine;

1-[3-(3,4-Dimethoxyphenyl)-propyl]-4-[2-(R,S)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine; and

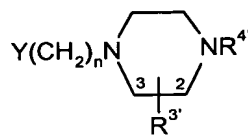
1-[3-(1,3-Dihydro-2-oxobenzimidazol-1-yl)-propyl]-4-[2-(R)-hydroxy-2-(6-methoxyquinolin-4-yl)ethyl]piperazine.

9 (Previously Presented). A process for preparing compounds of formula (I), or a pharmaceutically acceptable salt and/or N-oxide thereof according to claim 1, which process comprises:

(a) reacting a compound of formula (IV) with a compound of formula (V):



(IV)



(V)

wherein Z^1 , Z^2 , Z^3 , Z^4 and Z^5 , m , n , R^1 , R^3 and R^4 are as defined in formula (I), and X and Y may be the following combinations:

- (i) X is M and Y is $CH_2CO_2R^X$, CH_2CHO or CH_2COW
- (ii) X is CO_2RY and Y is $CH_2CO_2R^X$
- (iii) one of X and Y is $CH=SPh_2$ and the other is CHO
- (iv) X is CH_3 and Y is CHO
- (v) X is CH_3 and Y is CO_2R^X
- (vi) X is CH_2CO_2RY and Y is CO_2R^X
- (vii) X is $CH=PR^Z_3$ and Y is CHO
- (viii) X is CHO and Y is $CH=PR^Z_3$
- (ix) X is halogen and Y is $CH=CH_2$
- (x) one of X and Y is COW and the other is $NHR^{11'}$
- (xi) one of X and Y is $(CH_2)_p-W$ and the other is $(CH_2)_qNHR^{11'}$ or $(CH_2)_qOH$
- (xii) one of X and Y is CHO and the other is $NHR^{11'}$,

or where $n=0$

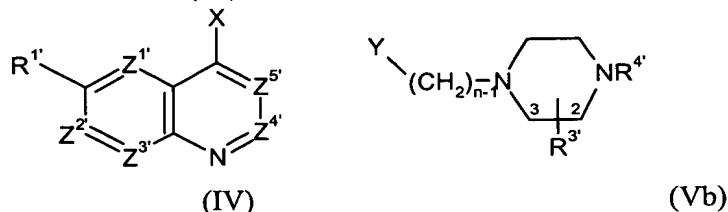
- (xiii) X is $A-B-(CH_2)_n-W$ or $A-B-(CH_2)_{n-1}-CHO$ and Y is H
- (xiv) X is NCO and Y is H
- (xv) X is CH_3 and Y is H
- (xvi) X is $COCH_2W$ and Y is H
- (xvii) X is $CH=CH_2$ and Y is H

(xviii) X is oxirane and Y is H

in which W is a leaving group, R^X and R^Y are (C_{1-6}) alkyl and R^Z is aryl or (C_{1-6}) alkyl;

or

(b) reacting a compound of formula (IV) with a compound of formula (Vb):



wherein Z^1 , Z^2 , Z^3 , Z^4 and Z^5 , m, n, R^1 , R^3 and R^4 are as defined in formula (I), X is $CH_2NHR^{11'}$ and Y is CHO or COW;

in which $Z^{1'}$, $Z^{2'}$, $Z^{3'}$, $Z^{4'}$, $Z^{5'}$, $R^{11'}$, R^1 , R^3 and R^4 are Z^1 , Z^2 , Z^3 , Z^4 , Z^5 , R^{11} , R^1 , R^3 and R^4 or groups convertible thereto, and thereafter optionally or as necessary converting $Z^{1'}$, $Z^{2'}$, $Z^{3'}$, $Z^{4'}$, $Z^{5'}$, $R^{11'}$, R^1 , R^3 and R^4 to Z^1 , Z^2 , Z^3 , Z^4 , Z^5 , R^{11} , R^1 , R^3 and R^4 , converting A-B to other A-B, interconverting Z^1 , Z^2 , Z^3 , Z^4 , Z^5 , R^{11} , R^1 , R^3 and/or R^4 and forming a pharmaceutically acceptable salt/and or N-oxide thereof.

10 (Previously Presented). A pharmaceutical composition comprising a compound of formula (I) or a pharmaceutically acceptable salt/and or N-oxide thereof according to claim 1, and a pharmaceutically acceptable carrier.

11 (Previously Presented). A method of treatment of bacterial infections in mammals, particularly in man, which method comprises the administration to a mammal in need of such treatment of an effective amount of a compound of formula (I) or a pharmaceutically acceptable salt/and or N-oxide thereof according to claim 1.

12. (Cancelled).

13. (Cancelled).